

DOCUMENT RESUME

ED 094 737

IR 000 935

TITLE A System for Interlibrary Communication (SILC).
INSTITUTION Association of Research Libraries, Washington, D.C.
PUB DATE 19 Jul 74
NOTE 14p.; Minutes of a Meeting (Washington, D.C., July 19, 1974)

EDRS PRICE MF-\$0.75 HC-\$1.50 PLUS POSTAGE
DESCRIPTORS Conference Reports; Feasibility Studies; Information Processing; Interlibrary Loans; Librarians; *Library Associations; *Library Automation; *Library Cooperation; Library Expenditures; Library Networks; *National Programs; *Research Libraries

IDENTIFIERS Association of Research Libraries; SILC; System For Interlibrary Communication

ABSTRACT

The minutes of a meeting sponsored by the Association of Research Libraries (ARL) is presented. Thirty-one representatives, primarily from the library community, met at the Brookings Institution in Washington, D.C. on July 19, 1974, for an ARL-sponsored meeting to discuss a recently-completed feasibility study of a computer-based system for interlibrary communication (SILC). The meeting reviewed and summarized the major features of SILC services and functions including accounting, message switching and processing, and the referral of interlibrary loan messages transmitted between borrowing and lending libraries. A discussion of bibliographic verification and location information is included. However, the major portion of the minutes and the accompanying charts are devoted to the costs and funding of SILC. (WCM)

ASSOCIATION OF RESEARCH LIBRARIES



A SYSTEM FOR INTERLIBRARY COMMUNICATION (SILC)

MINUTES OF A MEETING SPONSORED BY THE ASSOCIATION OF RESEARCH LIBRARIES

Brookings Institution
Washington, D. C.
July 19, 1974

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

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Thirty one representatives* drawn primarily from the library community met at the Brookings Institution in Washington, D. C. on July 19, 1974, for an ARL-sponsored meeting to discuss a recently-completed feasibility study of a computer-based system for interlibrary communication (SILC). The study was conducted by ARL with a grant from the National Science Foundation. The meeting was chaired by David Weber, chairman of the ARL Interlibrary Loan Committee, and included a briefing by Dr. Robert Hayes, the principal investigator for the SILC study.

In the briefing Dr. Hayes reviewed and summarized the major features of SILC services and functions including accounting, message switching and processing, and referral of interlibrary loan messages transmitted between borrowing and lending libraries. [Sections from the SILC final report were assembled into a compilation of SILC Briefing Charts which were distributed to each participant and were referred to throughout the discussion. The information contained in the charts will not be summarized here. For additional information reference should be made to the charts (selected charts are attached here) or to the SILC final report: A System for Interlibrary Communication (SILC).]

Bibliographic Verification and Location Information

A recurring discussion topic was the importance of bibliographic verification and location identification for interlibrary loan. The proposed SILC system does not directly provide for either of these activities.

The larger problems of bibliographic control were considered to be beyond the scope of the current project, which is recognized as being only one component involved in the provision of access to information. The proposed SILC system was carefully designed as a "do-able" project, one that could serve as an important first step in the implementation of a national communications system which eventually would accommodate activities related to bibliographic verification and location information.

*List of attendees attached

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Nevertheless the participants felt that more attention needed to be given to such things as the use of bibliographic data bases (e.g. MARC and CONSER) in a SILC-like system, and the relationship of SILC to current on-going activities of existing bibliographic centers and interlibrary loan networks.

Costs of SILC

(See Figures 3-3, 6-1, 6-11 attached)

Essentially, the cost figures for the present system used by Dr. Hayes are taken from the Westat study A Study of the Characteristics, Costs and Magnitude of Interlibrary Loans in Academic Libraries. However, because of the differences in interpretation of what constitutes a "transaction", some adjustments of the Westat figures were made to include both the costs of the borrowing and lending libraries. Costs for verification are not included in the estimates. Total costs cited for the present system should be increased from \$8.77 to approximately \$10.50 to include costs for referrals.

Because of the inadequacy of available cost figures and the need to make estimates based upon incomplete information, Dr. Hayes emphasized that the cost figures used are the best estimates he could derive, but admittedly are not firm for a number of categories. For example, total costs of a SILC system performing all functions could be \$9.70 - \$12.00 depending upon a number of factors (e.g. costs for connect time, type of input/output device used, mode of processing, terminal costs, etc.)

Dr. Hayes stated that one of the important outcomes of a pilot test of SILC would be the generation of reliable data, including cost figures, which could provide the basis for improved planning and decision making.

Pilot Test (SILC Phase 2)

The SILC pilot test was seen as important for a number of reasons:

- 1) the technical, operational, management and economic feasibility of SILC needed to be tested and evaluated;
- 2) the pilot test will generate badly needed data which will give a truer picture of the volume and costs of interlibrary loan activity;
- 3) the human factors and problems involved in a SILC-like system are of considerable importance and need to be fully explored.

The pilot test would be so designed that it will be a fair test of a national system.

The choice of test participants would be made by the ARL Executive Board, the funding agency and the SILC manager. Others expressing interest in serving as the SILC manager are MINITEX, WICHE and NASIC. Dr. Hayes indicated the most likely candidates to serve as the time-sharing company for a SILC system include Computer Science Corp., General Electric, National CSS, Time Share, Inc., United Computing Systems as well as Datran, Service Bureau and Western Union.

The schedule for the pilot test would involve approximately 18 months, including six months for planning and design, six months for implementation, and six months of a full scale operation of the system. At the end of these 18 months, the manager would make his report including analysis of all pertinent data on costs and statistics on various activities. Based on this analysis and review, the decision would be made as to whether future funding should be explored. It was noted that under this schedule, there might be problems of transition into a full scale operation, since halfway through Phase 2 and prior to a fair testing, the proposal for Phase 3 would have to be prepared. An alternative was suggested that would provide for the evaluation phase to begin about the twelfth month; by the fifteenth month a decision would be made as to whether the testing was successful; and during the last three months the project would be phased out if the evaluation had been negative or, if successful, plans would be made for seeking added funding and planning future activities.

Funding for SILC Phase 2

(See Figures C-9 and C-10 attached)

In figure C-9 Dr. Hayes provided a breakdown of costs for Phase 2 totalling \$578,000. In discussing alternative strategies for funding Dr. Hayes identified five potential sources of funds: the funder of development, the funder of pilot tests, the participating consortium, the participating libraries, and the SILC manager. As an example of the nature of the cost sharing Dr. Hayes noted that a portion of the costs (specifically, some part of the \$150,000 estimated for "Administration") might be considered as an "in kind" contribution by the SILC Manager. For example, the administrative staff may already be on board and funded by the budget of the SILC Manager; those salaries and related expenses could be treated as the contribution by the SILC Manager, under the assumption that the work in development of SILC was a necessary part of the overall mission of the SILC Manager.

Similarly, a portion of the costs (specifically, some part of the \$110,000 estimated for personnel in the participating libraries) might be considered as an "in kind" contribution by the pilot test libraries. The extent to which they would be willing and able to donate the time of staff will vary greatly from one possible test bed to another, but in most cases some donation of time and expenses seems feasible.

A portion of the costs of the participating libraries could be coverable by a funding agency concerned with the support of their interlibrary cooperation, for example NLM (if one of the regional medical library networks were the group of pilot test libraries) or OE (if one of the state library networks were).

The sources of funds and decisions regarding allocation of costs would be dependent upon the choice of the SILC manager and the participants in the pilot test. The amounts shown on Figure C-10 attached were suggested by Dr. Hayes as one possible plan for the sharing of costs.

When fully implemented as a national system, funding for SILC could be provided both at the state and national levels. There was some discussion of Figure 5-6 attached showing the estimated cash flow for the first three years after the pilot test. In commenting on the funds required for the first year of operation, particularly before income was generated, it was noted that \$50,000 per quarter the first year was required. To the extent that there would be state and federal funds available, this amount would not be required from the participating libraries. Another consideration mentioned was that if the projected schedule were not maintained the negative cash flow would be present for a longer period of time. In addition if there were not full participation, the cash flow might be adversely affected to a significant extent. All of these factors need to be carefully considered if planning goes forward.

Comments from NSF - OSIS

Mr. Weber asked Dr. Lee Burchinal, head of the Office of Science Information Service, NSF, to discuss his assessment of the SILC project and the interest of NSF in Phase 2. Dr. Burchinal indicated that he felt a very promising base for further activity had been created in Phase 1 of the project. NSF would encourage ARL to pursue a pilot project assuming acceptable answers could be found for some of the broader issues raised during the meeting, such as those relating to bibliographic control and the type of services that a SILC system should provide. He noted that perhaps additional consideration was needed of such areas as (a) alternative pilot test designs (e.g. should there be more than one group involved in a pilot test?); (b) the geographical considerations that should be taken into account in selecting the pilot test areas; (c) the level or type of libraries asked to participate in the pilot test; (d) the state versus multi-state basis for participation. The criteria for selection of the manager, the manager's role and selection of the time-sharing companies are all extremely important matters which need careful consideration.

Dr. Burchinal also suggested that the planning should go beyond Phase 2 to Phase 3, including a reasonable schedule of proposed activities, and the determination in advance of criteria for selection of participants in a national system which might be established after Phase 2 activities.

There is a need for careful delineation of the kind of data that is needed to make the hard decisions regarding some of these issues. The implications of the changes caused by the SILC system were important as they would affect the total community, including publishers, libraries, users, the scholarly community and so forth, and that an oversight committee might be formed with representatives from these groups. Should the decision be made to go ahead with Phase 2, ARL should seek joint funding; NSF would be interested in being a party to these further activities, but Dr. Burchinal indicated that joint funding was necessary to ensure a longer term continuity for a project of this scope.

ALA Comment

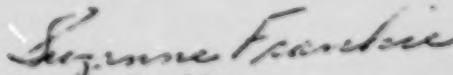
Robert Wedgeworth, Executive Director of American Library Association, said that there was a basic difference in the way ALA and ARL see the problem. From the ALA point of view, the state and regional systems are important and would seem to offer the best approach to providing interlibrary loan services. ALA is in the process of preparing a proposal for a funding agency which will be ready in the fall to look at a "developed" system, such as the OCLC, and an "undeveloped" system. The ALA feels the emphasis should be upon the development of a bibliographic system which will provide location information. The potential number of lenders is much greater than we now assume, but because location information is not available the number of lenders is not as great as it should be.

Conclusion

In response to Mr. Weber's request for a general reaction from the group on their interest and support for ARL going further with the SILC study, five people indicated they were enthusiastic, 13 people favored it but with some reservations and one had serious doubt.

It appeared that the general view of the group was that the feasibility of the project had been well-documented, and that there should be further consideration of the issues noted above.

Submitted by



Suzanne Frankie
Assistant Executive Director

August 19, 1974

FIGURE 3-3

REPRESENTATIVE CALCULATION OF

ESTIMATED TIME-SHARING SYSTEM

COSTS OF SILC PROCESSING

(1) <u>Connect time charges</u> for input and output, assuming that an average request involves about three messages with bibliographic data (each of 300 characters, as an average) and six other messages (each of 60 characters):		
(300 char.) (3 messages) (\$12 per hour)		
(10 char. per sec.) (3600 sec. per hour)		= \$.30
(60 char.) (6 messages) (\$12 per hour)		
(10 char. per sec.) (3600 sec. per hour)		= .12
(2) <u>CPU time charges</u> for message switching, referral, and accounting:		
(20 msec.) (9 messages) (\$.20/sec.)		= .04
(20 msec.) (9 mess.) (15% referrals) (\$.20/sec)		= .006
(1 msec.) (9 messages) (\$.20/sec) (3 reports)		= .006
(3) <u>On-line storage charges</u> until resolution of a request, assuming that the average length of a record is about 1000 characters (300 for the initial bibliographic message and 9 times 60 for the subsequent postings), and that it is on-line for an average of 20 days:		
(20 days) (1000 char.) (\$.40 per month/1000 ch.)		
(30 days per month)		= .03
Total		\$.502

FIGURE 5-6

CASH FLOW FOR FIRST THREE YEARS AFTER
COMPLETION OF PILOT TEST &
INITIATION OF FULLY OPERATIONAL SERVICE

Years:	1				2				3				
Quarters:	1	2	3	4	5	6	7	8	9	10	11	12	
Usage (1) (in thousands of requests)	00	50	100	150	200	250	300	350	400	450	500	550	By Quarter
				300				1100				1900	By Year
				300				1400				3300	Cumulative
Costs (2) (in thousands of dollars)	70	100	130	160	190	220	250	280	310	340	370	400	By Quarter
				460				940				1420	By Year
				460				1400				2820	Cumulative
Billings (3) (in thousands of dollars)	00	40	80	120	160	200	240	280	320	360	400	440	By Quarter
				240				880				1520	By Year
				240				1120				2640	Cumulative
P/L (4) (in thousands of dollars)	-70	-60	-50	-40	-30	-20	-10	00	+10	+20	+30	+40	By Quarter
				-220				-60				+100	By Year
				-220				-280				-180	Cumulative
Receipts (5) (in thousands of dollars)			40	80	120	160	200	240	280	320	360	400	By Quarter
				120				720				1360	By Year
				120				840				2200	Cumulative
Cash Flow (6) (in thousands of dollars)	-70	-100	-90	-80	-70	-60	-50	-40	-30	-20	-10	0	By Quarter
				-340				-220				-60	By Year
				-340				-560				-620	Cumulative
Cumulative (7) Total Cash Commitment (in thousands of dollars)	70	170	260	340	410	470	520	560	590	610	620	620	
Average Cost Per Request (8)				1.53				.86				.75	

(1) See Figure 5.3

(2) See Figure 5.4

(3) Based on \$0.80 per request

(4) Billings-Costs

(5) Based on Billings from prior
quarter

(6) Receipts-Costs

(7) Cumulative Cash Flow

(8) Yearly Costs/Yearly Usage

FIGURE 6-1

ESTIMATED COSTS PER REQUEST, PRESENT OPERATIONS
(BY PROCESSING FUNCTION, INSTITUTION, & REQUEST RESULT)

	Bibliogr. Searching	Physical Handling	Other	Handling Expenses	Commun. Expenses	SILC Related	Total
<u>Borrowing Library</u>							
Filled Original	\$2.87	1.00	.27	.50	.16	1.24	6.04
Filled Copy	2.87	.25	.27	.05	.16	1.34	4.94
Unfilled	2.87		.27	.05	.16	.69	4.04
<u>Lending Library</u>							
Filled Original	.72	1.30	1.00	.33		.90	4.25
Filled Copy	.72	1.50	1.00	.85		1.00	5.07
Unfilled	.72		1.00	.05	.16	.22	2.15
<u>Total</u>							
Filled Original	3.59	2.30	1.27	.83	.16	2.14	10.29
Filled Copy	3.59	1.75	1.27	.90	.16	2.34	10.01
Unfilled	3.59		1.27	.10	.32	.91	6.19
If we assume 35% Filled Original, 30% Filled Copy, and 35% Unfilled, we get the following Average "Cost per Request":							
Average	3.59	1.33	1.27	.60	.22	1.76	8.77

TOTAL COSTS PER REQUEST FOR ALTERNATIVE SYSTEMS

Alternative Accounting Systems	Bibliogr. Searching	Physical Handling	SILC Related	Other (Unalloc.)	Total
Present System	\$3.59	1.93	1.98	1.27	8.77
Present System (with full accounting)	3.59	1.93	2.68	1.27	9.47
Clearinghouse (with use of coupons)	3.59	1.93	2.33	1.27	9.12
SILC (only for accounting)	3.59	1.93	2.16	1.27	8.95
Alternative Message Switching Systems	Bibliogr. Searching	Physical Handling	SILC Related	Other (Unalloc.)	Total
Present System	\$3.59	1.93	1.98	1.27	8.77
Full use of teletype plus clearinghouse accounting	3.59	1.93	2.79	1.27	9.58
SILC (for message switching and accounting)	3.59	1.93	2.52	1.27	9.31
Alternative Referral Systems	Bibliogr. Searching	Physical Handling	SILC Related	Other (Unalloc.)	Total
Present System	3.59	1.93	1.98	1.27	8.77
Full use of teletype for message switching and referral & Clearinghouse for accounting	3.59	1.93	3.09	1.27	9.88
SILC (for message switching, referral and accounting)	3.59	1.93	2.55	1.27	9.34

FIGURE C-9

Phase 2 Cost Estimate

REVISED ESTIMATES

SILC REPORT

Task	Amount	
Administration (SILC Manager)	\$150,000	
Programming	150,000	
Pilot-test (SILC Manager)		
Planning	10,000	
Procedures development	15,000	
Training	45,000	
Test & evaluation	20,000	
	90,000	
Time-sharing system costs	30,000	
Participating library costs		
Terminals (15 for 12 mos. @ \$100/mo.)	18,000	
Phase 2A Personnel (1 Library, 6 mos.)	10,000	
Phase 2B Personnel (15 Libr'y, 6 mos.)	50,000	
Phase 2C Personnel (15 Libr'y, 6 mos.)	50,000	
	128,000	
Travel and other expenses	30,000	
	<u>\$578,000</u>	

A System for Interlibrary Communication (SILC)

A Conference Sponsored by ARL

Brookings Institution
Washington, D. C.
July 19, 1974

ATTENDEES

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Virginia Boucher
William Budington
Lee Burchinal
Richard Chapin
Margaret Child
Edward D'Alessandro
Richard De Gennaro
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Suzanne Frankie
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